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DE NOVO INVERTED LEFT ATRIAL APPENDAGE: AN UNRECOGNIZED CAUSE OF LEFT ATRIAL MASS WITH SYMPTOMS MIMICKING MYXOMA

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When a patient has had a stroke, echocardiography usually is performed to rule out cardiac foci for embolization. Newly diagnosed atrial masses in this scenario are, as determined by means of differential diagnosis, usually thrombi, vegetations, or tumors.[1] Therapy may be different for each of these entities and include anticoagulation, antibiotics, or operation. Recently, various reports have concentrated on inverted left atrial appendages (LAAs) as an unusual complication after cardiac operations. This rare manifestation is to be valued in our opinion as an epiphenomenon of manual manipulation after cardiac operations and has to be considered if a new mass is diagnosed by means of echocardiography. However, it allows us to present a true inverted LAA, which became symptomatic as a result of a stroke verified by computed tomography (CT), and implies that such structures, as described in this report, are thrombogenic and have to be removed surgically.

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Clinical summary. A 38-year-old woman without any prior cardiac operations who had medicated Graves disease presented a partial seizure with loss of consciousness. The patient was brought to a neurologic intensive care unit, where her condition stabilized. A neurologic examination revealed a partial left homonym hemianopsia. The performed cranial CT revealed a stroke in the right posterior lobe. After 6 weeks, the

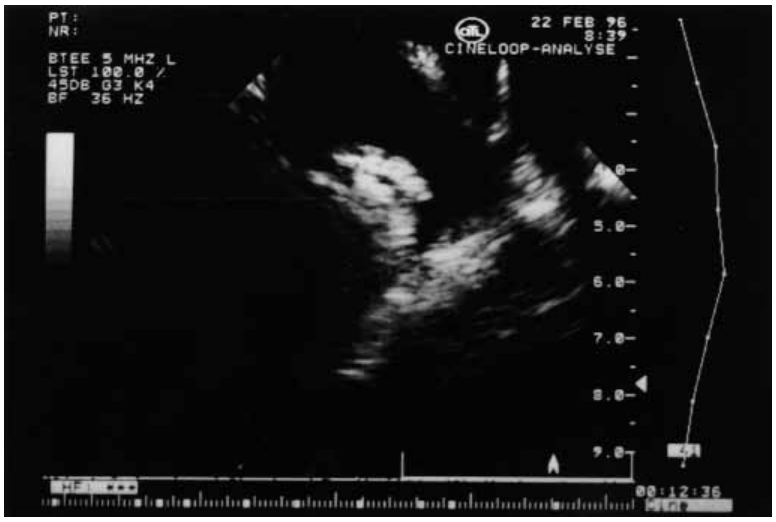

Fig 1. Transesophageal echocardiography demonstrates a mass in the left atrium. The mass appeared to be mobile and seemed to arise from the septum in close proximity to the posterior leaflet of the mitral valve.

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Fig 2. MRI showing the intussusception of the left atrial appendage *(arrows)*. *LA*, Left atrium; *LV*, left ventricle; *RA*, right atrium; *RV*, right ventricle.

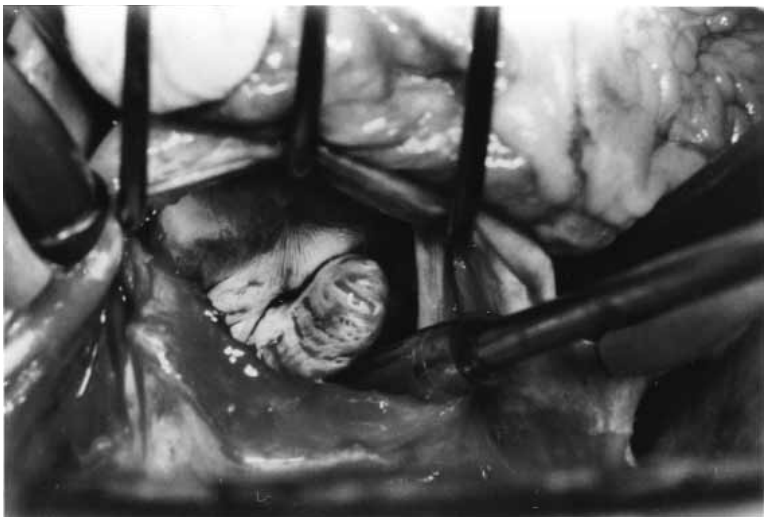

Fig 3. Operative view. Inverted LAA with a trabeculated surface is observed in the left atrial cavity.

clinical symptoms have resolved, and in a follow-up cranial CT the cerebral embolization was no longer identified. A search for embolic foci was conducted, and a transesophageal echocardiography (Fig 1) revealed a mass in the left atrial cavity in proximity to the posterior mitral valve adjunct to the atrial septum. The valvular apparatus was described as smooth and compliant. To establish a definitive radiologic diagnosis, preoperative magnetic resonance imaging (MRI; Fig 2) was initiated. In the T2-sequenced MRI, a structure with typical inhomogeneous structure was verified and confirmed the suspected diagnosis of a myxoma in the left atrium, with dimensions of 1.5 cm × 1.5 cm. Cardiac operation was initiated to resect the suspected atrial myxoma; however, after bicaval cannulation, initiation of cardiopulmonary bypass, and visualization of the left atrium through the intra-atrial groove, a protrusion of the left atrial appendage into the left atrium (Fig 3) was visualized. The whole left appendage was resected. Intraoperative performed transesophageal echocardiography revealed no remaining structure after closure of the atrium, and the patient was decannulated. The postoperative course since then has been uneventful.

Discussion. Inverted LAA after surgical manipulation, septal aneurysm, pulmonary vein remnants, and septal hematoma must be considered when a structure is newly diagnosed in the left atrium.[2-4] Allen and colleagues[5] stated that once the correct diagnosis of an inverted LAA was ascertained, the lesion might be left alone because of the nature of the totally endothelialized structure. Moreover, they assumed that thrombus formation is impossible because of rapid blood flow. In this report we present a de novo manifestation of an

inverted LAA with a patient who had a partial seizure as an initial symptom and a neurologically symptomatic stroke in the posterior cerebral lobe, which was verified by means of CT. To the best of our knowledge, this entity has not been reported previously. Considering the radiologic and morphologic structures present in our case, no option other than operation was possible. However, the crooked finger appearance and a broad thumb-like mass, as described by Minich and associates,[6] might have helped us to consider the above-mentioned possibility. Additionally notable is that the accurate diagnosis for inverted LAA was confirmed surgically in 8 of 10 reported cases. In all these cases the atrial appendages were reverted or excised surgically.

In conclusion, an inverted LAA must be considered as one of the causes for a left atrial mass if observed during echocardiography. We believe that inverted LAA should be considered as a thrombogenic entity because in our patient a possible embolus was the first manifestation that led to the diagnosis of the de novo inverted LAA.

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